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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/651,334 08/31/00 BAILEY

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MM91/1003

EXAMINER

ALCALA, J

ART UNIT

PAPER NUMBER

2841
DATE MAILED:

10/03/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/651,334

Applicant(s)

BAILEY ET AL.

Examiner

Jose H Alcalá

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 4, 13-19 and 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-12, 20 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 August 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group 1, Species 1, claims 1-3,5-12 and 20-21 in Paper No. 4 is acknowledged. The traversal is on the ground(s) that search and examination of the whole application can be done without serious burden because the search of the species and groups partially overlaps.

This is not found persuasive because these inventions are distinct for the reasons given in the last office action and have acquired a separate status in the art as shown by their different classification. The requirement is still deemed proper and is therefore made FINAL.

Drawings

2. The drawings are objected to because the figures must be properly crosshatched. See MPEP p 600.81. Correction is required.
3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the conductive pad "being electrically coupled with said signal trace" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Specification

4. The disclosure is objected to because of the following informalities: In page 13, line 5 the reference number 16 is called both: "pad" and "hole".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-3, 5-12 and 20-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: how the conductive pad is located on the dielectric layer and in the hole at the same time, what is the relationship between these elements. In addition in line 6 of claim, the recitation: "a majority thereof within an area defined by an outer periphery of the hole" is indefinite. It is not clear what is a "majority" of the conductive pad.

Regarding claim 20, it is not clear what the recitation: "a majority thereof within an area defined by an outer periphery of the hole" means. It is not clear what is a "majority" of the conductive pad.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3,6-11 and 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohshima et al. (US Patent No. 5,455,393). As best understood by the examiner:

Regarding Claim 1, Ohshima teaches a surface laminar circuit board, comprising: an insulating layer (Reference number 103); a conductive layer (Reference number 106) disposed on an upper surface of said insulating layer, said conductive layer having a hole formed therein (See spaces between Reference number 103); a dielectric layer (Reference number 108) disposed on an upper surface of the conductive layer; and a conductive pad (Reference number 112) having a majority thereof within an area defined by an outer periphery of the hole, said conductive pad being for receiving a surface mounted component thereon.

Regarding Claim 2, Ohshima teaches that the dielectric layer is a photosensitive dielectric layer (Reference number 108).

Regarding Claim 3, Ohshima teaches that said photosensitive dielectric layer is in direct contact with the insulating layer by way of the hole (See Figure 1G), and wherein said conductive pad (Reference number 112) is disposed directly on an upper surface of said photosensitive dielectric layer, said dielectric layer separating said conductive pad from said conductive layer and from said insulating layer.

Regarding Claim 6, Ohshima teaches that said conductive layer comprises a signal ground layer (Reference number 106).

Regarding Claim 7, Ohshima teaches that said signal ground layer is comprised of copper (Reference number 108).

Regarding Claim 8, the limitation "said hole is formed by etching", is a product by process limitation. Even though the claims are limited by and defined by the recited process, the determination of patentability of the product is based on the product itself, and does not depend on its method of production. If the product in the product-by-process claims are the same as or obvious from a product of the prior art, the claims are unpatentable even though the prior product was made by a different process. See *In re Thorpe*, 227 USPQ 964,966 (Fed.Cir 1985). A "product by process" claim is directed to the product per se, no matter how actually made, *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); *In re Marosi et al*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above case law makes clear.

Regarding Claim 9, Ohshima teaches that said photosensitive dielectric layer has a thickness (it is inherent to the device), in a region over the conductive layer, less than about 50 micrometers. (Column 4, line 60)

Regarding Claim 10, Ohshima teaches that said photosensitive dielectric layer has a thickness, (it is inherent to the device), in a region over the conductive layer, equal to or less than about 40 micrometers. (Column 4, line 60)

Regarding Claim 11, Ohshima teaches further comprising signal traces (Reference number 110) disposed directly on said photosensitive dielectric layer.

Regarding Claim 20, Ohshima teaches a surface laminar circuit board, comprising: an insulating layer (Reference number 103); a signal ground conductive layer (Reference number 103); disposed on an upper surface of said insulating layer, said conductive layer having a hole (the space between 106) formed therein; a photosensitive dielectric layer (Reference number 108) disposed on an upper surface of the signal ground conductive layer, said dielectric layer having a photo micro-via (Reference number 107) formed therein; a signal trace (Reference number 110) disposed on said photosensitive dielectric layer, and being electrically coupled with said signal ground conductive layer by way of said photo micro-via (See Figure 1H); a conductive pad (Reference number 112) having a majority thereof within an area defined by an outer periphery of the hole, and being electrically coupled with said signal trace (See Figure 1H); and a surface mounted component mounted on said conductive pad (See column 3, lines 1-3).

Regarding Claim 21, Ohshima teaches that said photosensitive dielectric layer (Reference number 108) is in direct contact with the insulating layer (Reference number 103) by way of the hole (Space between reference number 106), and wherein said conductive pad (Reference number 112) is disposed directly on an upper surface of said photosensitive dielectric layer, said dielectric layer separating said conductive pad from said conductive layer and from said insulating layer. See Figure 1H.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 5, 12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohshima et al. (US Patent No. 5,455,393). As best understood by the examiner:

Regarding Claim 5, Ohshima teaches all the limitations of Claim 1 as stated supra, but fails to explicitly teach that said insulating layer is an FR4 insulating layer. It would have been obvious to one having ordinary skill in the art at the time the invention was made, to make said insulating layer an FR4 insulating layer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding Claim 12, Ohshima teaches all the limitations of Claim 1 as stated supra, but fails to teach that said conductive pad (Reference number 102) is disposed completely within the area defined by the outer periphery of the hole. It would have been an obvious matter of design choice to dispose said conductive pad completely within the area defined by the outer periphery of the hole, since applicant has not disclosed that the specific location of the pad solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the conductive pad in any other place of that same surface.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references show some of the elements of the instant claimed invention: Durand et al. (US Patent No. 5,531,020), Ishida (US Patent No. 5,382,757) and Inoue (US Patent No. 4,816,323).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jose H Alcala whose telephone number is (703) 305-9844. The examiner can normally be reached from Monday to Friday.

13. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on (703) 308-3301. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

14. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JHA
October 1, 2001

Albert W. Paladini 10-1-01
ALBERT W. PALADINI
PRIMARY EXAMINER